RightPath

MUSCULOSKELETAL TRIAGE GUIDANCE FOR CHILDREN AND YOUNG PEOPLE

RED FLAGS

DIRECT TO A&E

Suspected Septic Arthritis

Suspected Slipped Upper Femoral Epiphysis (SUFE): Hip, groin, distal thigh pain in 10-16 year olds should always be regarded as potential SUFE; leg pain on weight bearing with pain on passive hip movements are signs of SUFE.

RED FLAGS - Discuss with senior clinician / urgent referral / 2-week potential cancer pathway

RHEUMATOLOGY REFERRAL

Suspected inflammatory arthritis - Joint swelling, early morning stiffness and pain, systemic illness and motor milestone regression

PAEDIATRIC REFERRAL

Suspected NAI, Suspected neurological problem (muscle wasting, muscle weakness, sensation changes) bowel or bladder problems, milestones delay / regression. Possible cancer (bruising, weight loss, systemic illness, morning headaches, +/- nausea/vomiting)

ORTHOPAEDIC REFERRAL

Limping Child (not suspected to be SUFE). Back problems (pain, scoliosis, neurological symptoms, systemic illness)

THIS LIST IS NOT EXHAUSTIVE, BE SUSPICIOUS OF ATYPICAL PRESENTATIONS, WORSENING SYMPTOMS AND IF IN DOUBT DISCUSS WITH SENIOR COLLEAGUES. THIS GUIDE ASSUMES YOU HAVE EXPERIENCE OF PAEDIATRIC MSK PROBLEMS

RightPath

FLAT FEET

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

- The child is under six years of age and no red flags
- Mobile flat foot (i.e. the medial longitudinal arch forms normally when the child stands on tip toe, or when the big toes are passively extended)
- No limp or interference with daily activity (playing, walking)
- No pain in feet or legs or joints
- Normal milestones
- No joint restriction
- No signs of pressure on the foot such as blistering / callosities
- **Child is well and NO RED FLAGS**

Consider referral if any of the below are identified, either from letter or after assessment.

- Absent medial longitudinal arch when child stands on tip toes or when big toes are extended (i.e. non-mobile flat feet / foot)
- Asymmetrical changes (i.e. one foot fixed and flat)
- Signs of pressure on the foot such as blistering / callosities
- Morning stiffness, restriction of joint movement or swelling of any joint (not just foot or ankle)
- Marked hypermobility. Beighton more than 6/9
- **Any RED FLAG as listed**

PMM resources:
http://www.pmmonline.org/doctor/approach-to-clinical-assessment/normal-variants
http://www.pmmonline.org/page.aspx?id=352

RightPath

HEEL PAIN

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

- Child is well and no red flags
- Milestones normal and no delay or regression
- No limp or interference with daily activity (e.g. play, walking)

Consider referral if any of the below are identified, either from letter or after assessment.

- Persistent pain with functional limitation (walking, play, sport)

PMM resources:
http://www.pmmonline.org/doctor/joint-pain-by-site/foot-ankle-pain
http://www.pmmonline.org/page.aspx?id=544

RightPath

TIP TOE WALKING

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

- Child is well
- Child is under 3 years
- No pain in legs / joints
- Milestones normal and no delay or regression
- No limp or interference with daily activity (e.g play, walking)
- The toe walking is intermittent
- The toe walking is symmetrical
- The child is able to squat to play on the floor and is able to keep their heels on the floor
- Can jump (school aged child)

Consider referral if any of the below are identified, either from letter or after assessment.

- Asymmetrical tip-toeing
- Delay or regression of milestones
- Persistent problems for at least 50% of the time the child is ambulant
- Children over the age of 3 years with persistent toe walking who are unable to:
  - Stand from sitting on the floor without using hands (proximal weakness)
  - Squat or stand with their heels on the floor (Achilles tightness)
  - Jump (should be achieved by school age child)
- Suspicion of joint or muscle disease (e.g. pain, swelling, stiffness, limp, clumsiness, weakness; this may be suggested if toe walking is a change from a previous gait pattern)
- Family history of muscle disease
- Abnormal neuro exam (tone / reflexes / muscle bulk)
- Leg length discrepancy
- Dysmorphic / multisystem involvement
  - Consider neurodevelopmental disease if spastic tone, abnormal muscle bulk (enlarged or wasted), asymmetrical changes, abnormal reflexes, muscle weakness or family history
  - Consider metabolic or storage disease if family history, multisystem disease - recurrent ear infection or upper airway infection, grommets, snoring, cardiac defect, carpal tunnel, trigger finger, joint restriction (especially shoulders, hips, fingers) / dysmorphism

PMM resources:
http://www.pmmonline.org/page.aspx?id=353

RightPath

CURLY TOES

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

- Child well
- No skin thickening, skin trauma or blistering
- Child not functionally limited (walking, play)
- Child not in pain

Consider referral if any of the below are identified, either from letter or after assessment.

- Concern about joint disease (not just feet!)
- Concern about skin thickening or blistering (check shoes!) / trauma / pressure from adjacent toes
- Limited mobility due to pain interfering with function (e.g. play, walking)
- Paediatric orthopaedics if unsure if a normal variant or not or if underlapping toes

PMM resources:
http://www.pmmonline.org/page.aspx?id=1565

RightPath

BOW LEGS

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

- Well child
- Under 4 years
- Child not in pain
- Not functionally impaired (play, walking, milestones normal)
- Growth and development are normal

Consider referral if any of the below are identified, either from letter or after assessment.

- Changes are associated with pain, limping, joint swelling or functional impairment (e.g. mobility problems or prone to falling)
- Changes are extreme: the femoral intercondylar distance is >6 cm (– 'rule of thumb' more than width of child's own MCPs)
- Changes worsen or persist beyond age 4 years
- Child is short or disproportionate growth (e.g. short limbs compared to trunk) or dysmorphic
- General Paediatrics if suspect rickets or dysplasia or dysmorphism

PMM resources:
http://www.pmmonline.org/page.aspx?id=355

RightPath

KNOCK KNEES

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

- Well child
- Under the age of 5
- Child not in pain
- No functional impairment

Consider referral if any of the below are identified, either from letter or after assessment.

- There are signs of asymmetry
- Changes are associated with pain or functional impairment (e.g. prone to falling)
- Changes are extreme (gap between ankles is >8 cm)
- Changes worsen or persist beyond age 6 years
- Leg length discrepancy

PMM resources:
http://www.pmmonline.org/page.aspx?id=354

RightPath

IN TOEING

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

- Well child
- Child not in pain
- No limp
- Not functionally impaired (play, walking, milestones)
- Child <10 years of age

Consider referral if any of the below are identified, either from letter or after assessment.

- Changes are extreme or persistent or there is a rigid foot
- Sudden onset
- There is associated pain
- There are functional problems (e.g clumsy and prone to falling)
- Paediatric orthopaedics if suspect hip disease or unsure if a normal variant

PMM resources:
http://www.pmmonline.org/page.aspx?id=357

RightPath

OUT TOEING

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

- Well child
- Child not in pain
- No limp
- Not functionally impaired (play, walking, milestones)
- Child aged <4 years

Consider referral if any of the below are identified, either from letter or after assessment.

- Urgent referral to A&E if recent onset of changes, limp or asymmetry – consider SUFE
- Changes are extreme or persistent (> 4 years)
- There is associated pain
- There are functional problems with mobility or play (clumsy and prone to falling)
- Paediatric orthopaedics if suspect hip disease or unsure if a normal variant

PMM resources:
http://www.pmmonline.org/page.aspx?id=356

RightPath

HYPERMOBILITY

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

- Well child
- Child not in pain
- Not functionally impaired (walking, milestones)

Consider referral if any of the below are identified, either from letter or after assessment.

- Suspicion of inherited collagen syndromes (e.g. Marfans) - check body habitus, sclerae and skin
- Pain and functional limitation
- Asymmetrical joint involvement
- Inflammatory joint or muscle disease is suspected - remember children with hypermobility may also develop arthritis - can be suggested by relative loss of joint range in joints affected by arthritis or change in function (school, play, walking)
- Reduced mobility (subluxation / dislocation)
- Paediatric rheumatology if suspect connective tissue disease (e.g. Marfans) or diagnostic uncertainty or limp or pain of unknown cause

PMM resources:
http://www.pmmonline.org/doctor/approach-to-clinical-assessment/normal-variants/hypermobility

RightPath

LATE WALKING

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

- Child well and <18 months
- No other concerns about development

Consider referral if any of the below are identified, either from letter or after assessment.

- Walking delayed (>18 months) especially in boys, a waddling gait, enlarged muscle bulk or proximal muscle weakness - consider muscular dystrophies
- Delay or regression in other milestones (e.g. speech, communication, feeding)
- Clumsiness or prone to falling
- Family history of delayed walking or muscle disease
- General paediatrics if suspect global developmental delay
- Neuromuscular service if suspect muscle disease

PMM resources:
http://www.pmmonline.org/page.aspx?id=753

RightPath

LEG PAINS "GROWING PAINS"

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

Child presentation consistent with "rules" for growing pains. The 'rules' of growing pains:

- Age range 3–12 years
- Pains symmetrical in lower limbs, can be in joints, muscular or not localised
- Pains never present at the start of the day after waking
- Child doesn't limp
- Physical activities not limited by symptoms
- Physical examination normal (with the exception of joint hypermobility)
- Child is well
- Major motor milestones normal

Consider referral if any of the below are identified, either from letter or after assessment.

- Impaired functional ability (ask about play, sport, schoolwork, 'clumsiness')
- Limping (intermittent or persistent)
- Morning symptoms (other than tiredness after disturbed sleep)
- Widespread pain (such as upper limbs and back)
- School absenteeism
- Delay in milestones (especially major motor skills)
- Regression of achieved motor milestones (refer paediatric rheumatology)

PMM resources:
http://www.pmmonline.org/page.aspx?id=808

RightPath

KNEE PAIN

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

- Child otherwise well
- Intermittent symptoms
- Normal development
- No limp

Consider referral if any of the below are identified, either from letter or after assessment.

- Mechanical symptoms of locking or giving way – suggests internal derangement (meniscal injury, loose body)
- Suspicion of joint or muscle disease (pain, swelling, stiffness, clumsiness or change in ability to play or walk)
- An unwell child with systemic upset, bone pain, fever or unremitting night pain suggests infection or malignancy
- Paediatric orthopaedics if suspect injury, meniscal injury

Note: Hip pathology (e.g SUFE, Perthes) can present with referred pain to knee or thigh

PMM resources:
http://www.pmmonline.org/doctor/joint-pain-by-site/knee-pain

RightPath

CLUMSY CHILD

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

- Well child
- Not in pain
- Not functionally impaired (play, walking)
- Normal milestones

Consider referral if any of the below are identified, either from letter or after assessment.

- Delay / regression in achieved milestones (especially major motors skills)
- Regression of achieved milestones is more likely with acquired pathology (including inflammatory joint or muscle disease)
- Impaired functional ability (ask about play, sport, school work, handwriting, 'dressing')
- Marked hypermobility
- Learning difficulties
- Dyspraxia, co-ordination difficulties
- Limping (intermittent or persistent)
- Morning symptoms (other than tiredness after disturbed sleep) which may suggest inflammatory disease
- Widespread pain (such as upper limbs and back)
- School absenteeism
- Suspicion of joint or muscle disease (e.g. pain, swelling, stiffness or gelling after rest, weakness or limping)
- Systemic illness ('red flags')
- Neurology / neuromuscular service if suspect muscle disease or neurological cause

PMM resources:
http://www.pmmonline.org/page.aspx?id=1566

RightPath

SPINAL PAIN

Usually suitable for RightPath. Specialist opinion in the first instance may not be needed.

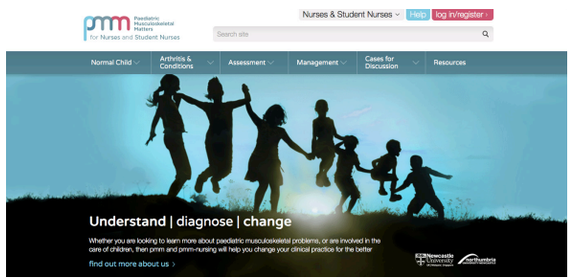
- Well child
- Not functionally impaired (play, walking, sport)
- Not systemically unwell
- Normal back examination
- No neurological symptoms

Consider referral if any of the below are identified, either from letter or after assessment.

- Painful scoliosiis over 10 years (urgent referral needed)
- Neurological symptoms (cough impulse, sensory change, radiculopathy)
- Systemic illness
- Impaired functional ability (ask about play, sport)
- Localised spinal tenderness (including sacroiliac joints)
- Morning stiffness
- Joint symptoms elsewhere
- Limping (intermittent or persistent)
- Widespread pain
- School absenteeism
- Suspicion of joint or muscle disease (e.g. pain, swelling, stiffness, weakness or limping)
- Orthopaedics with painful scoliosis or spondylolyis / listhesis or suspected infection or vertebral collapse (urgent referral)

PMM resources:
http://www.pmmonline.org/doctor/joint-pain-by-site/back-pain

RightPath



Paediatric Musculoskeletal Matters **(PMM, www.pmmonline.org)** is for all clinicians who may encounter children and young people; and aims to raise awareness, knowledge and skills to facilitate early diagnosis and referral to specialist care when needed. PMM includes tools to help clinicians to examine children's joints e.g. pGALS and pREMS - along with essential knowledge learning outcomes that are targeted at the level of the graduating doctor or nurse. PMM has been developed by a team working in partnership and including primary care doctors, medical students, paediatricians, orthopaedic surgeons, paediatric rheumatologists, paediatric neurologists, nurses, and allied health professionals; and whether you are looking to learn more about paediatric musculoskeletal problems, or are involved in the care of children and young people, then PMM can help you change your clinical practice for the better.

RightPath Team

Pennine MSK Partnership Ltd, Oldham, UK

Dr Alan Nye
Dr Neil Snowden
Mrs Helen Light
Mrs Katharine Kinsey

Newcastle University, Newcastle Upon Tyne, UK

Dr Tim Rapley
Dr Nicola Smith

Great North Children's Hospital & Newcastle University, Newcastle Upon Tyne, UK

Prof Helen Foster
Dr Sharmila Jandial

South Tyneside NHS Foundation Trust, South Shields, UK

Mrs Judith McNaught
Mrs Vicky Mercer
Mr Peter Morgan
Dr Gabriel Okugbeni

Contact Us

Prof Helen Foster: h.e.foster@newcastle.ac.uk
Dr Alan Nye: alan.nye@nhs.net

October 2017